Antimicrobial consumption in Danish finishing herds

Nielsen, Jens Peter; Petersen, H.H.; Bak, H.

Publication date:
2002

Document version
Publisher's PDF, also known as Version of record

PAPER 184

ANTIMICROBIAL CONSUMPTION IN DANISH FINISHING HERDS

[1,2]JP Nielsen, [1,2]HH Petersen, [1]H Bak
[1]The Royal Veterinary and Agricultural University, Frederiksberg C, Denmark
2) Research Centre for the Management of Animal Production and Health

Introduction and Objectives

The use of antimicrobials in animal production is of great public awareness. By January 1st 2000 the use of antimicrobial growth promoters in the Danish pig production was ceased. Since then an increase in consumption of therapeutic antimicrobials has occurred.
Recently, a national database (VETSTAT) on antimicrobial consumption was established (2). Since antimicrobials are prescription-only in Denmark the database is mainly based on records from pharmacies. The database will inform advisors and authorities on amount of antimicrobials prescribed by individual veterinarians to individual herds.
Our aim was to describe the variation in antimicrobial consumption among finishing herds and to study potential risk factors for high antimicrobial consumption.

Materials and Methods

A cross-sectional study of antimicrobial consumption and potential risk factors for high consumption was carried out in 86 herds. These herds were a sub-sample from a stratified random sample of 176 Danish finishing herds previously described (2). Only herds without sows were included. From the 176 selected herds 99 agreed to participate, but 13 herds were excluded mainly due to improper recordings.
Based on data from account statistics or pharmacy registrations the consumption of all types of antimicrobials was summarized for each herd during a 12 months period. In order to compare herds the total annual consumption was transformed to number of standard doses for 50 kg pigs based on recommended therapeutic doses. The number of standard doses per produced pig were calculated based on annual pig production and grouped as per oral (PO) or injectable (INJ). For each herd the following risk factors were recorded: SPF-status according to the Danish SPF-system, annual production of pigs, % mortality and gross margin. Two-way students t-test and linear regression was used to evaluate the effect of individual risk factors.

Results and Discussion

The number of standard doses per produced pigs in the 86 herds was subject to large variation (fig. 1). In 9 herds (10%) no antimicrobials were used during the 12-month period. In 26 herds (30%) only injectable antimicrobials were used, whereas 1 herd (1%) used per oral treatments only. The number of standard doses per produced pig was 0.01-0.5 in 26 herds (31%), 0.5-1 in 17 herds (20%), 1-2 in 13 herds (15%), 2-4 in 11 herds (13%) and 4 or more in 10 herds (12%). The highest number of standard doses per produced pig was 10.4 while the average number was 1.5 (standard deviation +/- 2.0). Per oral antimicrobials was used in 52 herds. Among these 23 herds (44%) used less than 1 standard dose per produced pig, and 14 (27%) used more than 2 standard doses per produced pig. Injectable antimicrobials were used in 77 herds. Among these, 67 herds (87%) used less than 1 standard dose per produced pig, and 4 herds (5%) used 2 or more standard doses per produced pig.
No statistical significant associations between potential risk factors (SPF-status, annual pig production, % mortality or gross margin) and antimicrobial consumption were found in bivariate analysis.

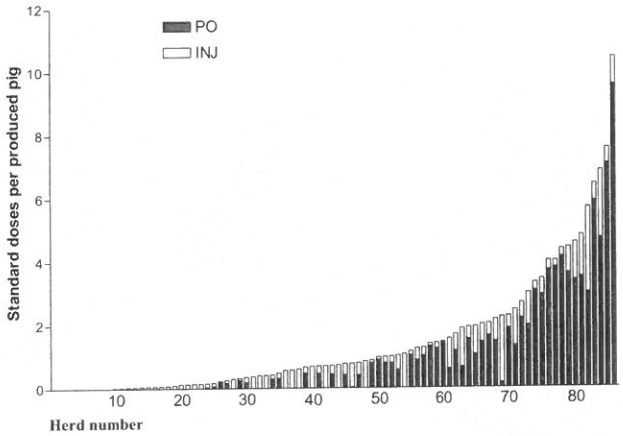

Fig 1. Use of antimicrobials (per oral (PO), injectable (INJ)) per produced slaughter pig recorded as standard doses for 50 kg pigs.
In conclusion, the study showed that antimicrobial consumption is subject to large variation among herds. In the preliminary analysis no significant risk factors for high antimicrobial consumption were identified. This may indicate that antimicrobial consumption is highly dependent on attitudes of farmers and prescribing veterinarians.

Acknowledgements

The Danish Institute of Agricultural and Fisheries Economics is thanked for providing raw-data.

References

1. Anonymous, 1999, WHO Weekly Epidemiological Record, 48, 416-417
2. Petersen H.H., Hassing A.-G., Nielsen E.O., Bækbo P. and Nielsen J.P., 2002, Proc. 17th IPVS congress Iowa

PROCEEDINGS

Poster Presentations

The 17th Congress of the International Pig Veterinary Society

June 2 - 5, 2002

Iowa State University
Ames, Iowa
USA

2